ABSTRACT

In a method for multi photon excitation of a sample a laser beam is split into at least two coherent partial beams each having a beam axis and a same intensity distribution about its beam axis. The partial beams are directed from different directions towards a common measuring plane running transversely to the beam axes at an inclination angle <1 between the beam axes of the partial beams; and the partial beams are projected onto the measuring plane by means of a common lens system. Thus, an interference pattern formed by the coherent partial beams within the measuring plane provides areas of maximum light intensity adjacent to areas of minimum light intensity.